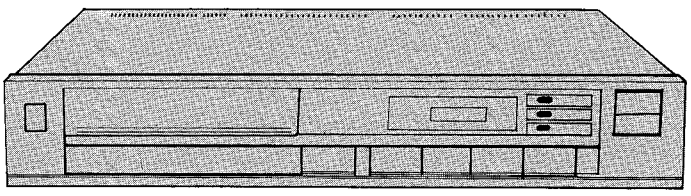
GoldStar

COMPACT DISC PLAYER
SERVICE MANUAL

CAUTION
BEFORE SERVICING THE CHASSIS, READ THE "SAFETY PRECAUTIONS", IN THIS MANUAL



MODEL: GCD-616

GoldStar

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SAFETY PRECAUTION

Many electrical and mechanical parts in this chassis have special safety-related characteristics. These characteristics are often passed unnoticed by a visual inspection and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this manual, electrical components having such features are identified by a ⚠ in the schematic diagram and the parts list. Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts which do not have the same safety characteristics as specified in the parts list may create shock, fire or other hazards.

WARNING !!

When servicing, do not approach the laser exit with the eye too closely. In case it is necessary to confirm laser beam emission, be sure to observe from a distance of more than 30 cm from the surface of the objective lens on the optical pick-up block.

SPECIFICATIONS

System :	Compact disc digital audio system
Disc :	Compact disc
Laser :	Semiconductor Laser (λ=780 nm)
Spindle Speed :	200 r.p.m. to 500 r.p.m.
Error Correction System :	Cross Interleave Reed & solomon Code (CIRC)
Scan Velocity :	1.2-1.4 m/sec.
Number of Channels :	2
Signal to Noise Ratio :	90 dB (at 1 kHz)
Frequency Response :	5 — 20,000 Hz $^{+1}_{-1.5}$ dB
Harmonic Distortion :	Less than 0.05% (at 1 kHz)
Dynamic Range :	More than 90 dB
Channel Separation :	More than 85 dB (at 1 kHz)
Wow and Flutter :	Below measurable limit
Outputs :	Line outputs
	Output level 2V rms (MSB)
	Load impedance over 10 kilohms

Disc

Track Pitch :	1.6 μm
Sampling Frequency :	44.1 kHz
Quantization :	16-bit linear quantizing/channel
Modulation System :	EFM
Diameter	120 mm
Thickness :	1.2 mm

General

Power Requirements:	AC 120 60 Hz / AC 220V 50 Hz
Power Consumption :	Max. 10 W
Dimensions :	430X77X310 mm (WXHXD)
Weight :	4.0 Kg (9 lbs)

DISASSEMBLY INSTRUCTIONS

TOP CASE REMOVAL (See Figure 1)

1. Remove four screws retaining top case. (Figure 1 Reference 1)
2. Then, remove the top case from the bottom case.

FRONT CASE REMOVAL (See Figure 1)

1. Remove two screws retaining front case. (Figure 1 Reference 2)
2. Remove two screws retaining front case.(Figure 1 Reference 3)
3. Then, remove the front case from the bottom case.

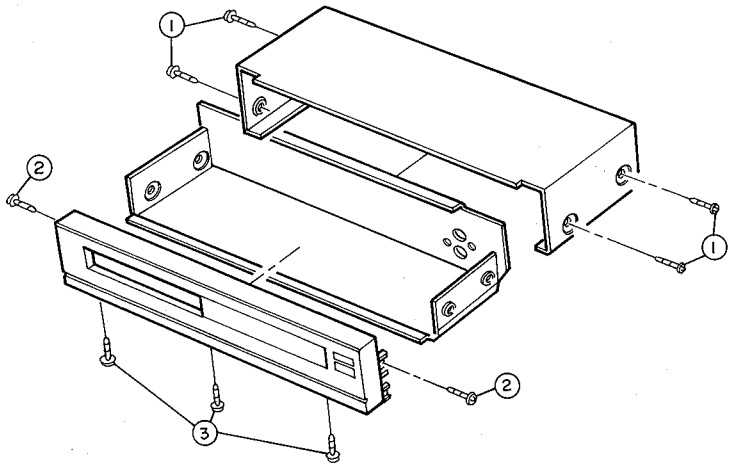


Figure 1

BOX REMOVAL (See Figure 2)

1. Take off the top and the front case.
2. For opening the box, rotate the loading gear located below mechanism left in hand. (Figure 2)
3. After be going and coming back the box about three times, pull out the box forward fast.

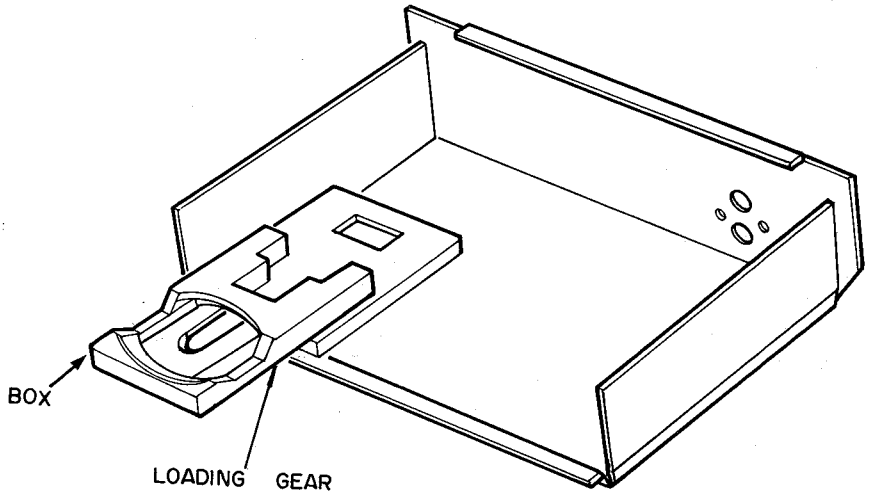


Figure 2

MECHANISM REMOVAL (See Figure 3)

1. Remove one screw. (Figure 3 Reference 4)
2. Pull out the mechanism backward.

MAIN P.C. BOARD REMOVAL (See Figure 3)

Remove two screws. (Figure 3 Reference 5)

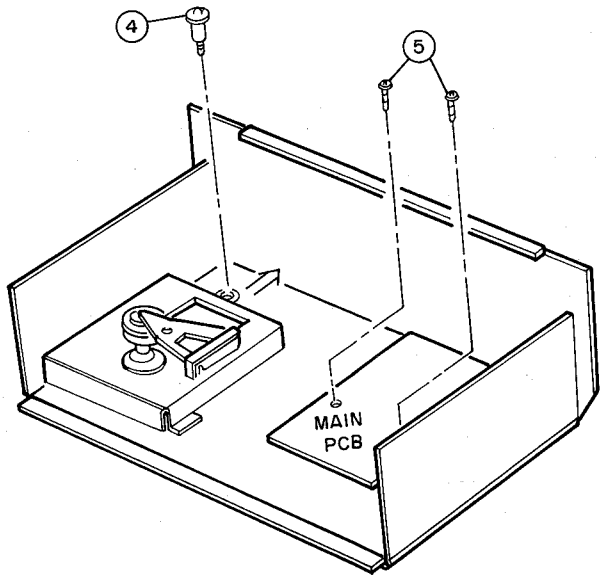


Figure 3

SWITCH P.C. BOARD (See Figure 4)

Remove two screws. (Figure 4 Reference 6)

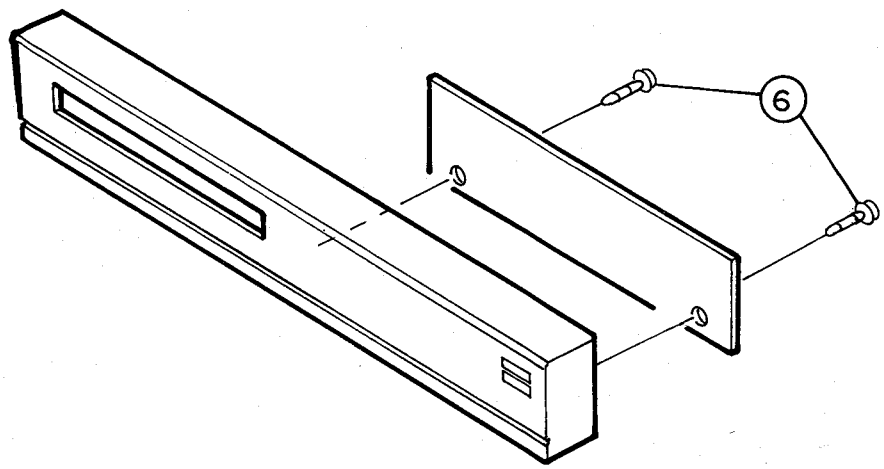
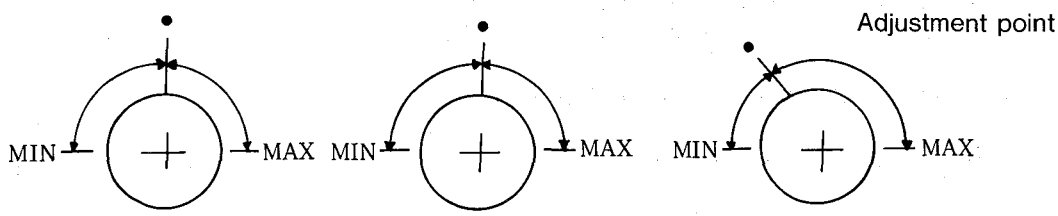


Figure 4

ADJUSTMENTS

*** Presetting**



VR101 (Tracking Balance) (1/2 Position)

VR103 (Focus Gain) (1/2 Position)

VR105 (Tracking Gain) (1/3 Position)

*** Test and Adjustment Point**

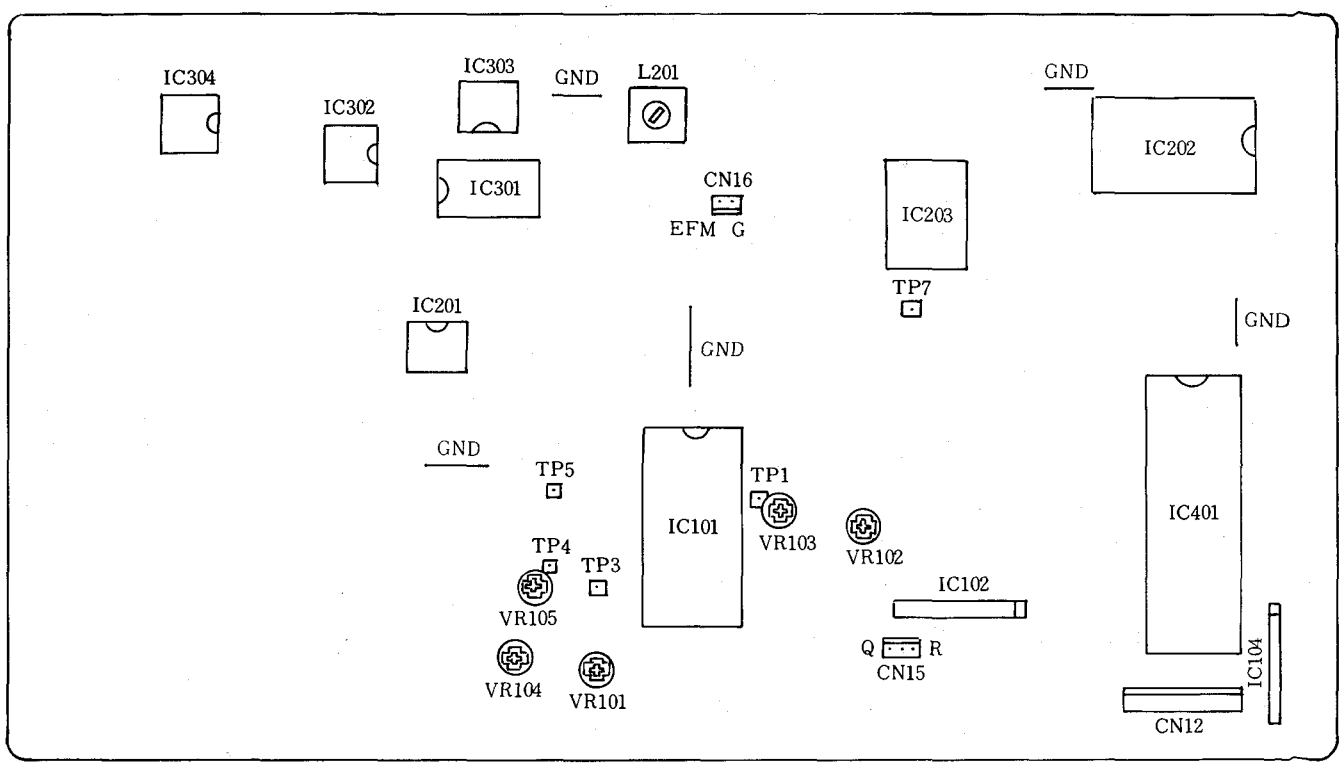


Figure 5. Main P.C. Board

1. Focus Offset Adjustment

(1) Turn on the power switch. (STOP mode)
(2) Connect digital volt meter to main board test point "R" (CN15) and GND.
(3) Adjust VR102 so that digital volt meter reading is DC 0±0.05V.

2. Tracking Offset Adjustment

(1) Turn on the power switch. (STOP mode)
(2) Connect digital volt meter to main board test point "Q" (CN15) and GND.
(3) Adjust VR104 so that digital volt meter reading is DC 0±0.05V.

3. Focus Search Confirmation

(1) Insert CNJ12 in CN12.
(2) Connect oscilloscope to main board test point "R" and GND.
(3) Turn on the power switch, and comfirm to appear the following figure 6.

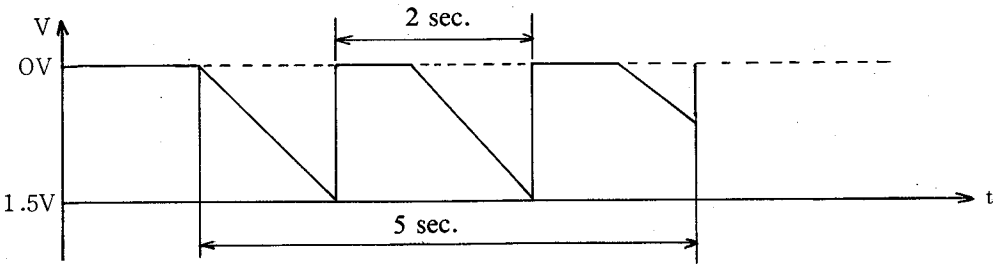


Figure 6

4. PLL Adjustment

(1) Turn on the power switch. (STOP mode)
(2) Connect frequency counter to main board test point TP7 and GND.
(3) Short-circuit the CN16 on the main board.
(4) Adjust L201 so that frequency counter reading is 4.3218 MHz ±20 kHz.
(5) After adjustment, return CN16 to the original state.

5. Tracking Balance Adjustment

(1) Connect oscilloscope to main board test point TP3 (TER) and GND.
(2) Short-circuit between "Q" and TP5 on the main board.
(3) Insert the disc (YEDS-7) and press PLAY button.
(4) Adjust VR101 so that oscilloscope waveform is symmetrical above and below, relative to OV.

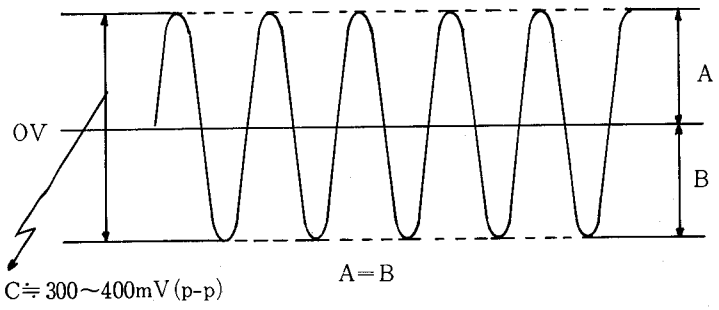


Figure 7

6. Diffraction Grating Adjustment

In 5 step, align the oscilloscope voltage level (peak to peak) largest.

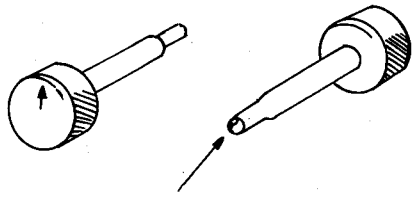


Figure 8. Diffraction grating adjustment driver

7. Jitter Adjustment

(1) Connect oscilloscope to main board EFM (CN16) and GND.
(2) Insert the disc (YEDS-7) and press PLAY Button.
(3) Adjust at the middle of disc.
(4) Adjust the head-base-skew screw on the MD so that eye-pattern is clear.

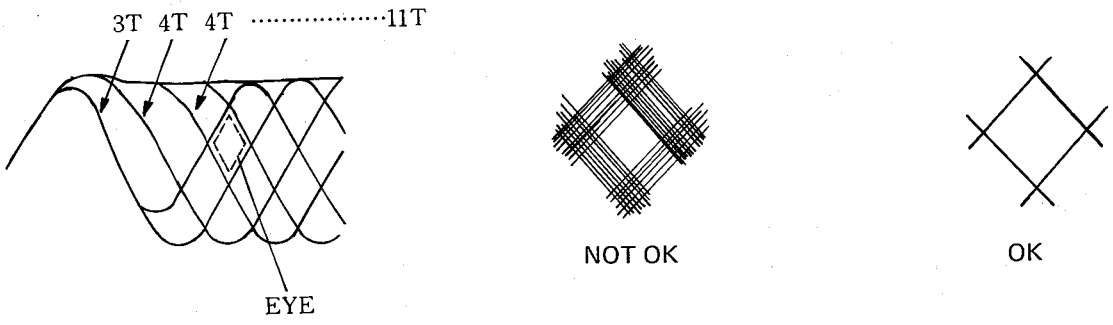


Figure 9. Eye Pattern

8. High Frequency Level Confirmation

(1) Insert the disc (YEDS-7) and press PLAY button.
(2) Confirm that oscilloscope voltage level is 1.4V ≦ A ≦ 2.0V

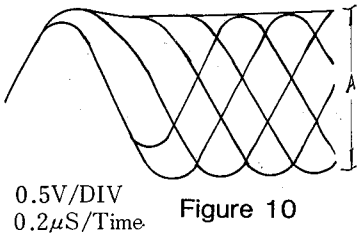
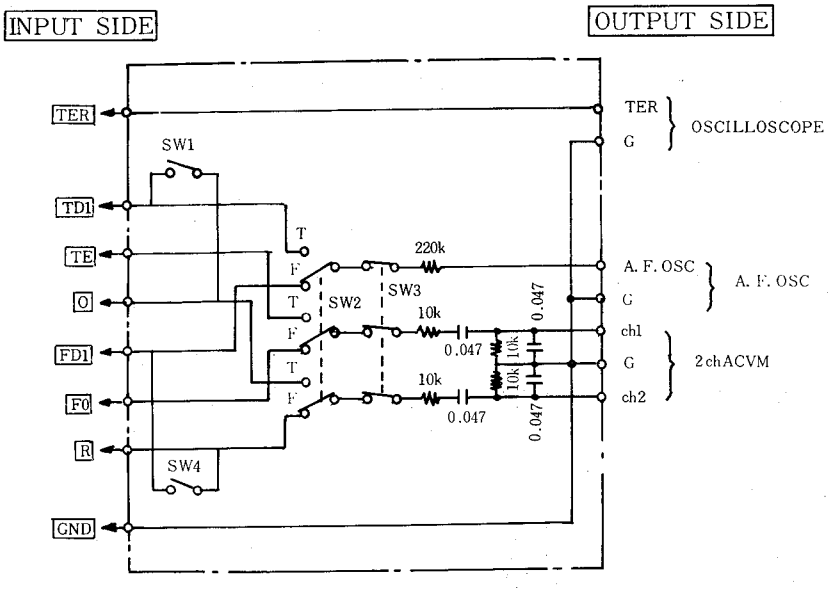


Figure 10

9. Focus Gain Adjustment

Measure focus and tracking gain adjustment by following the gain checker.



SW1 — Diffraction Grating, EF Balance Adjustment
SW2 — Focus Gain, Tracking Gain
SW3 — BPF On/Off
SW4 — Laser Output Confirmation

Figure 11. Gain Checker

(1) AF OSC (800 Hz, 4.5V rms) signal supplies across 220 kΩ.
(2) Connect between main board test point "FO" (TP1) and ch1 to BPF, connect between main board test point R and ch2 to BPF, and 2ch volt meter measure ch1 and ch2.
(3) Adjust VR103 so that gain gap is 12.5 dB.
Example) General gain level FO; −31dB
R; −17dB
Level difference is 14dB

10. Tracking Gain Adjustment

(1) AF OSC (1 kHz, 100mV rms) signal supplies across 220 kΩ.
(2) Connect between main board test point "Q" and ch2 to BPF, connect between main board test point "TE" (TP4) and ch1 to BPF, and 2ch volt meter measure ch1 and ch2.
(3) Adjust VR105 so that gain gap is 8.5dB.
Example) General gain level TE; −32.5dB
Q; −24dB
Level difference is 8.5dB

11. Kicking Comfirmation

(1) Connect oscilloscope to main board test point "TER" (TP3) and GND.
(2) Press the ►► mode or ◄◄ mode for 3 seconds, at the time observe waveform.

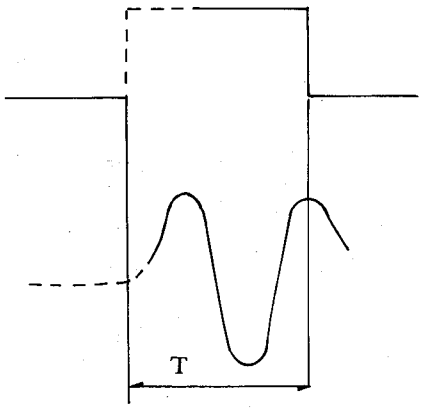
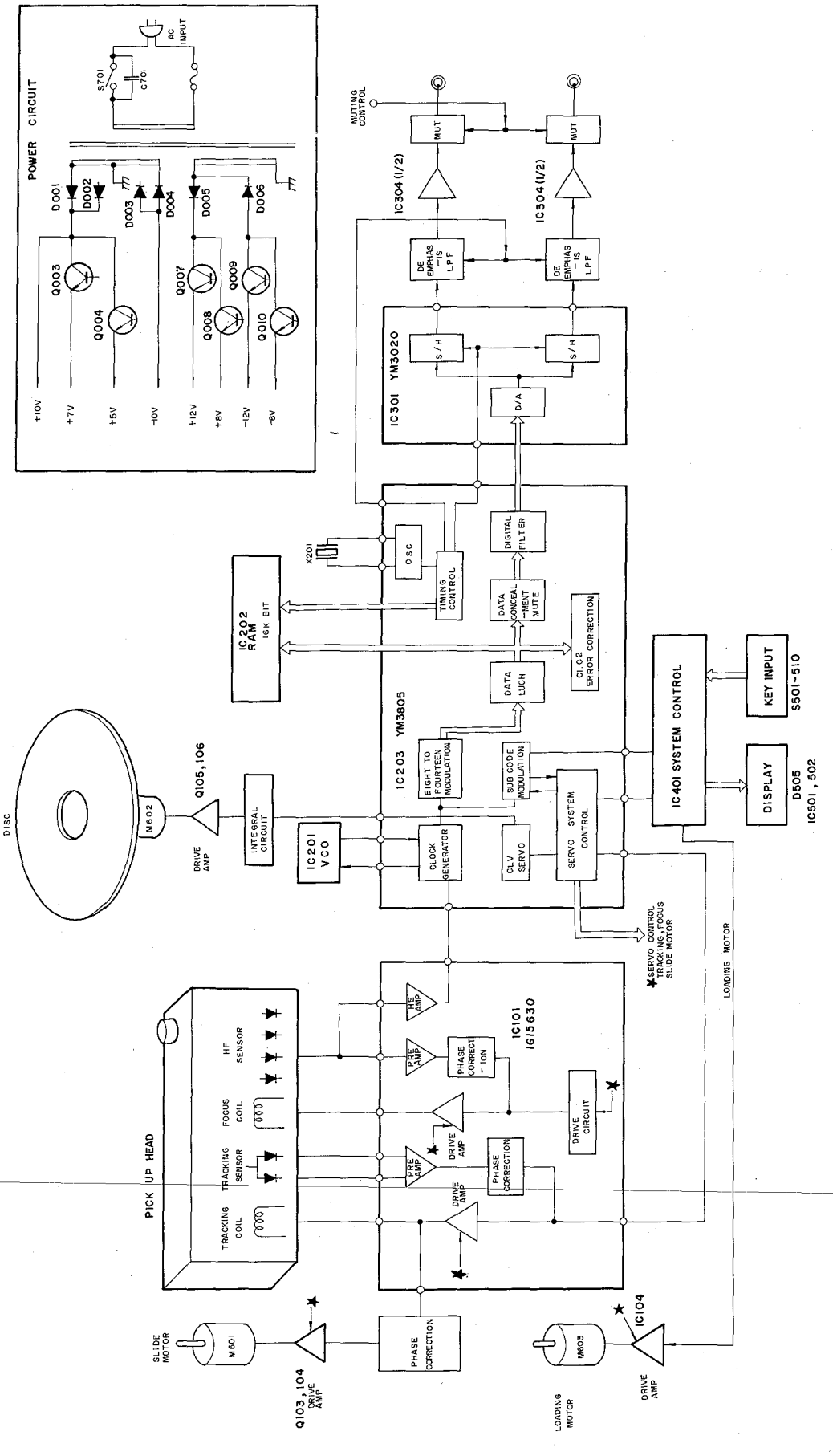


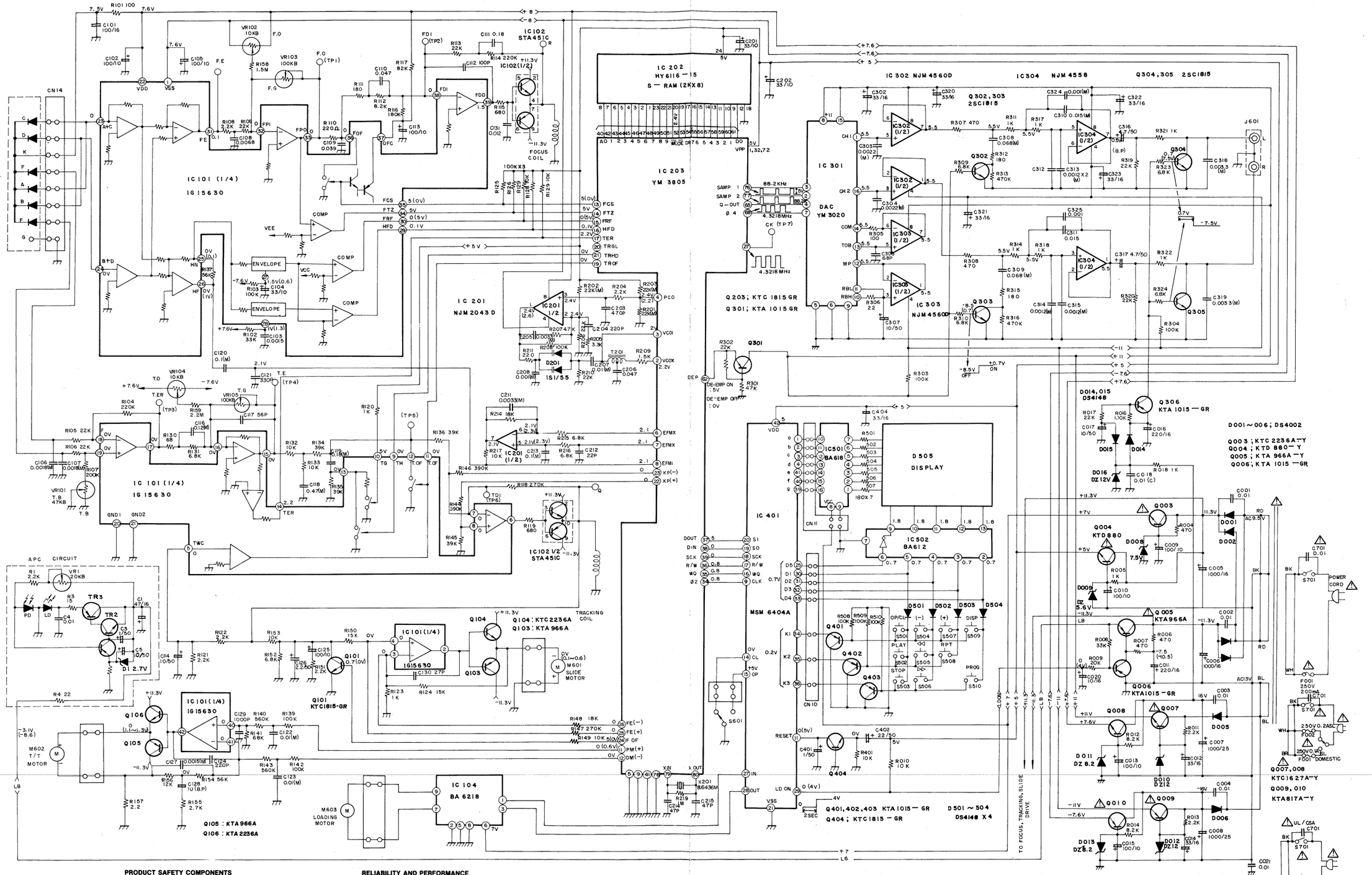
Figure 12

A cycle of "TER" signal must be 0.7 cycle < X < 2.3 cycle in T. It changes reverse phase that ◄◄ mode is pressed.

BLOCK DIAGRAM



SCHEMATIC DIAGRAM



PRODUCT SAFETY COMPONENTS

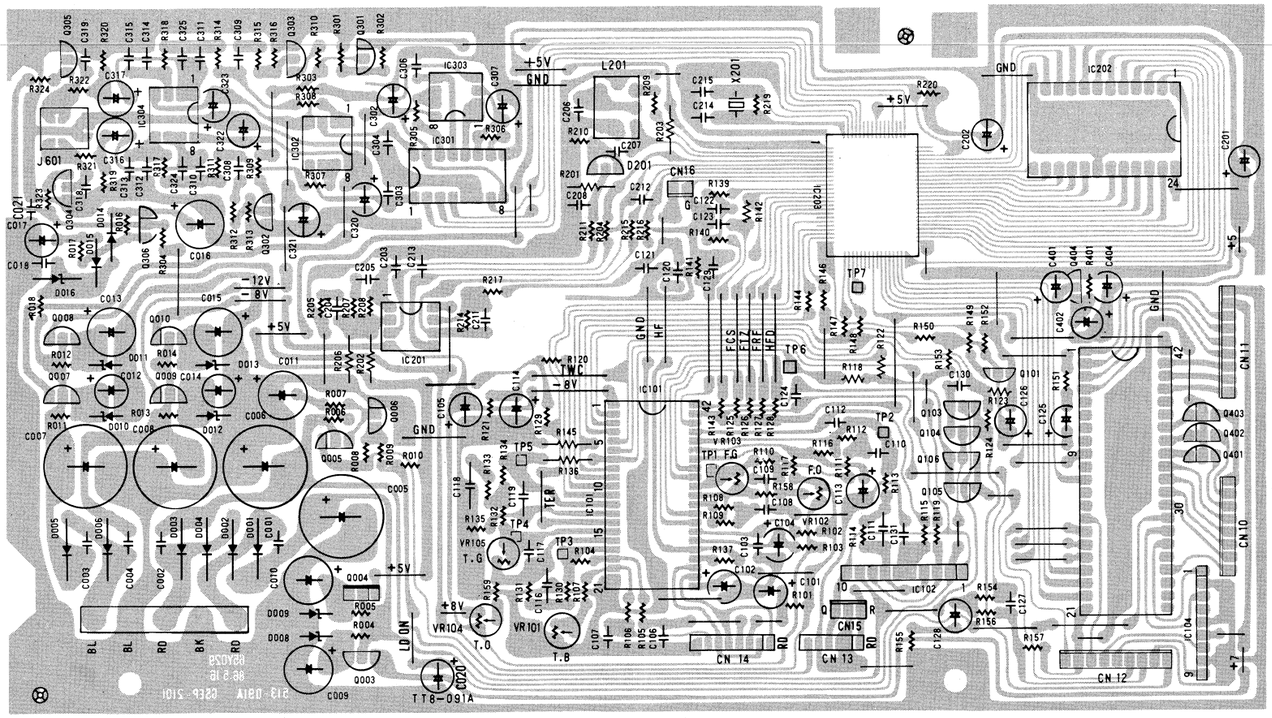
THE DESIGN OF THIS SET CONTAINS MANY CIRCUITS AND COMPONENTS INCLUDED SPECIFICALLY FOR SAFETY PURPOSE FOR CONTINUED PROTECTION NO. CHANGED SHOULD BE MADE TO THE ORIGINAL DESIGN AND COMPONENTS IDENTIFIED BY A ⚠ ON THE SCHEMATIC SHOULD BE REPLACED WITH EXACT FACTORY REPLACEMENT PARTS. THE USE OF UNAUTHORIZED SUBSTITUDE PARTS MAY CREATE A SHOCK FIRE, LASER OR OTHE HAZARDS. SERVICE SHOULD BE PERFORMED BY QUALIFIED PERSONNEL ONLY.

RELIABILITY AND PERFORMANCE

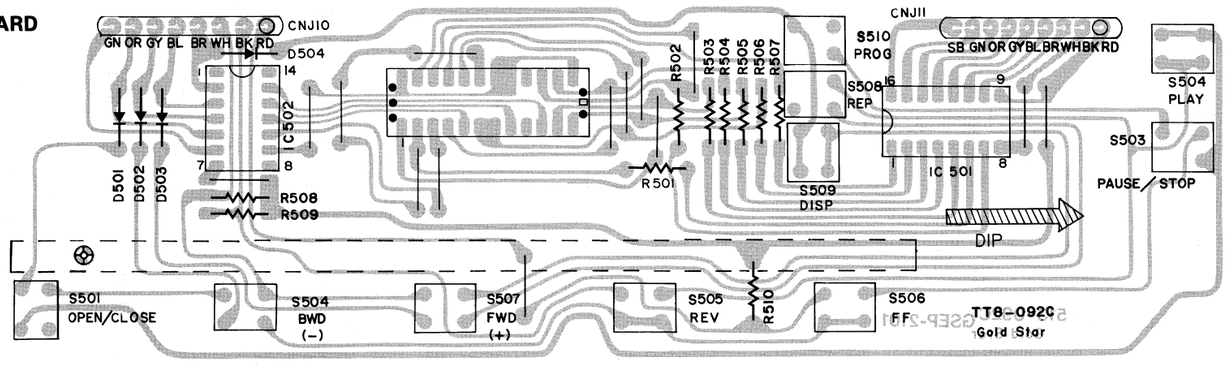
FOR CONTINUED REALIABILITY AND PERFORMANCE EXACT FACTORY REPLACEMENTS ARE RECOMMENDED FOR ALL OTHE REPLACED IF A SUBSTITUTE MUST BE USED. BE SURE ITS QUALITY AND SPECIFICATIONS ARE IDENTICAL TO THE ORIGINAL PART.

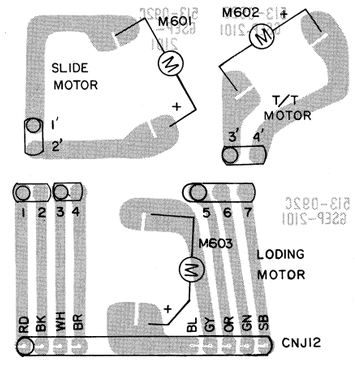
PRINTED CIRCUIT BOARD

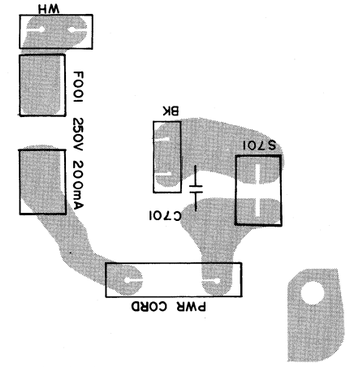
MAIN P.C. BOARD
(TOP VIEW)



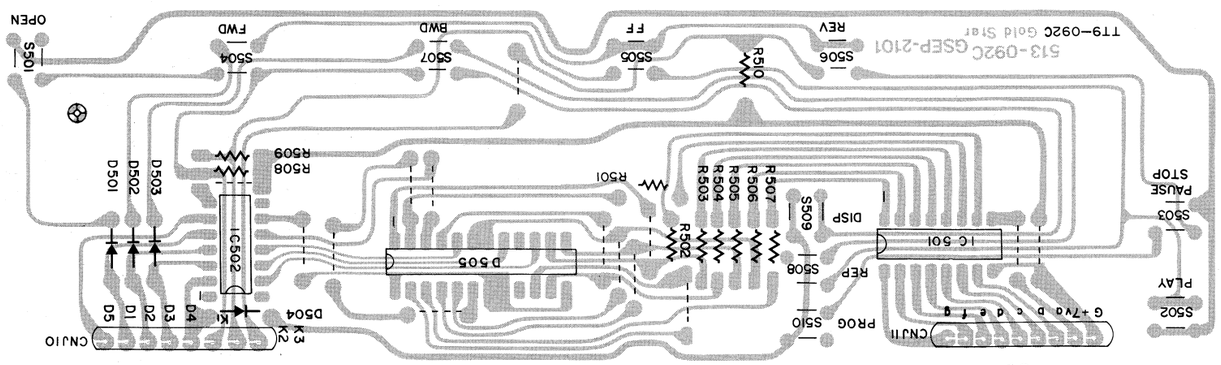
SWITCH P.C. BOARD
(TOP VIEW)

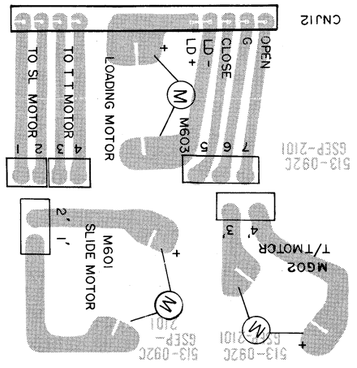


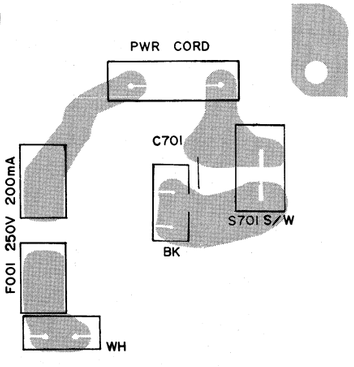




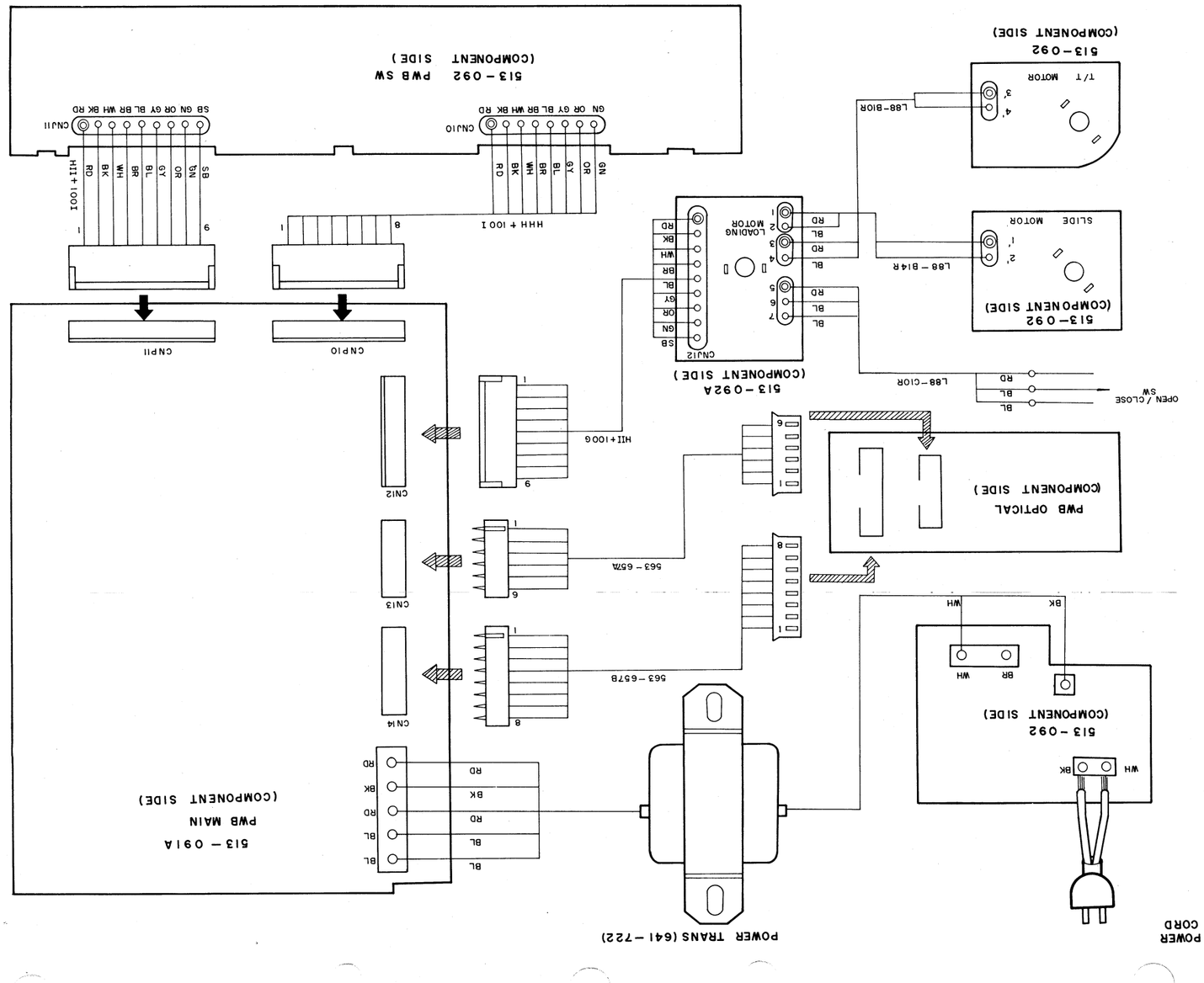
(BOTTOM VIEW)





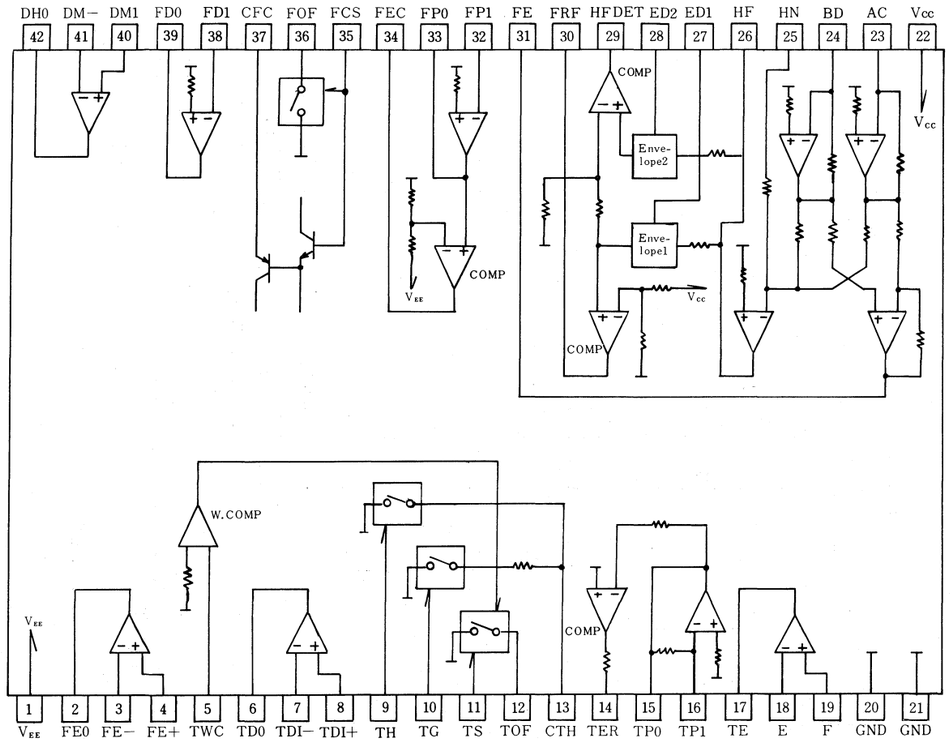


WIRING DIAGRAM

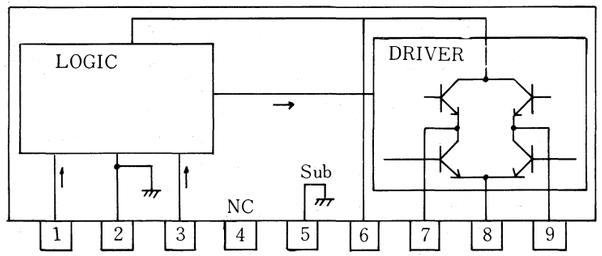


IC INTERNAL DIAGRAM

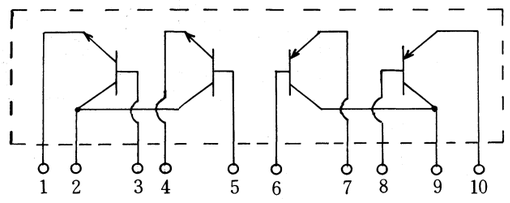
IC101 IG-15630


DH0 DM− DM1 FD0 FD1 CFC FOF FCS FEC FP0 FP1 FE FRF HFDET ED2 ED1 HF HN BD AC Vcc
42 41 40 39 38 37 36 35 34 33 32 31 30 29 28 27 26 25 24 23 22
COMP
Enve-lope2
Enve-lope1
Vcc
VEE
COMP
COMP
COMP
W.COMP
VEE
COMP
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21
VEE FE0 FE− FE+ TWC TD0 TDI− TDI+ TH TG TS TOF CTH TER TP0 TP1 TE E F GND GND

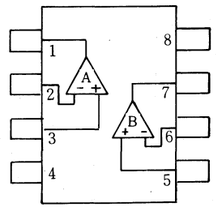
IC104 BA6218



IC102 STA451C

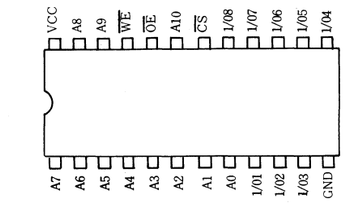


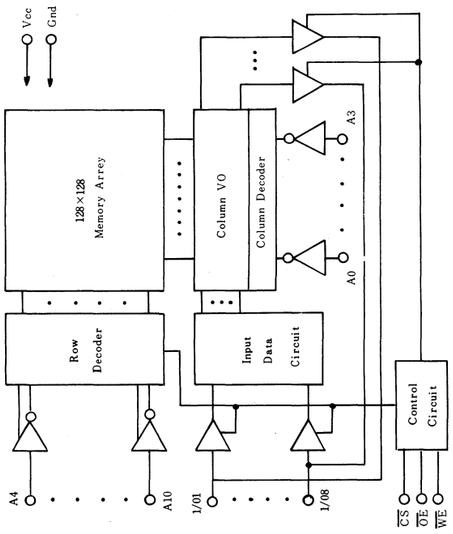
IC201 NJM2043D



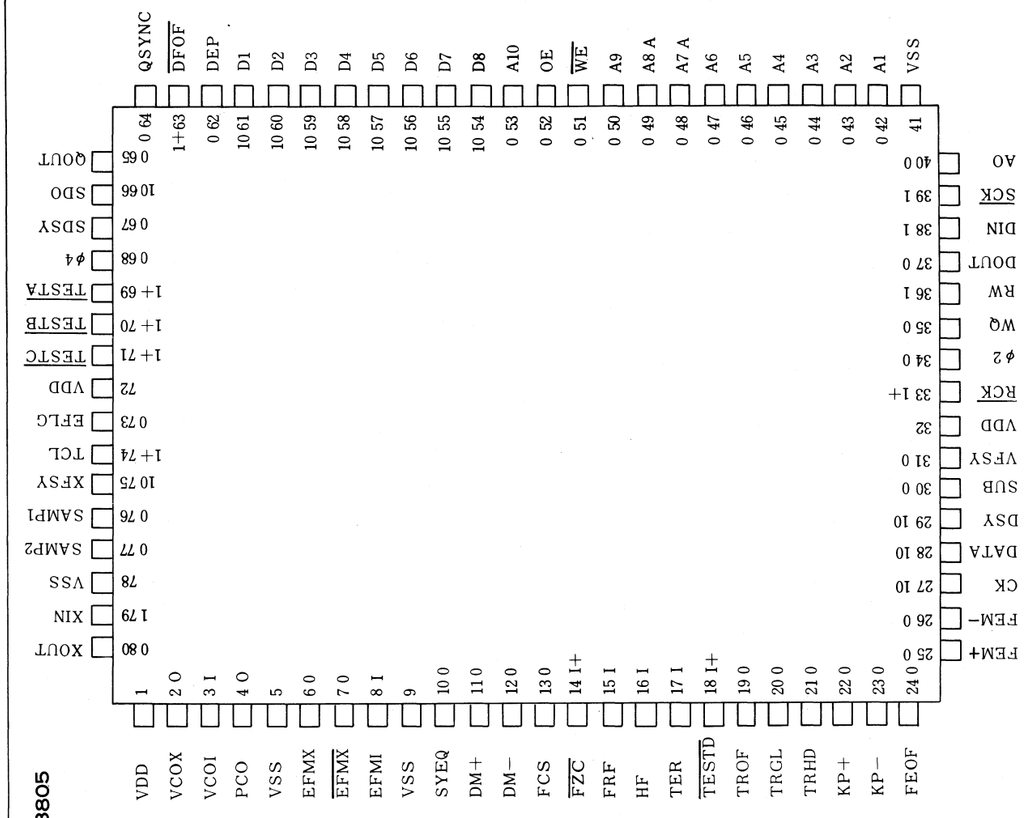
1. A OUTPUT
2. A−INPUT
3. A+INPUT
4. V⁻
5. B+INPUT
6. B−INPUT
7. B OUTPUT
8. V⁺

IC202 HY6116-15

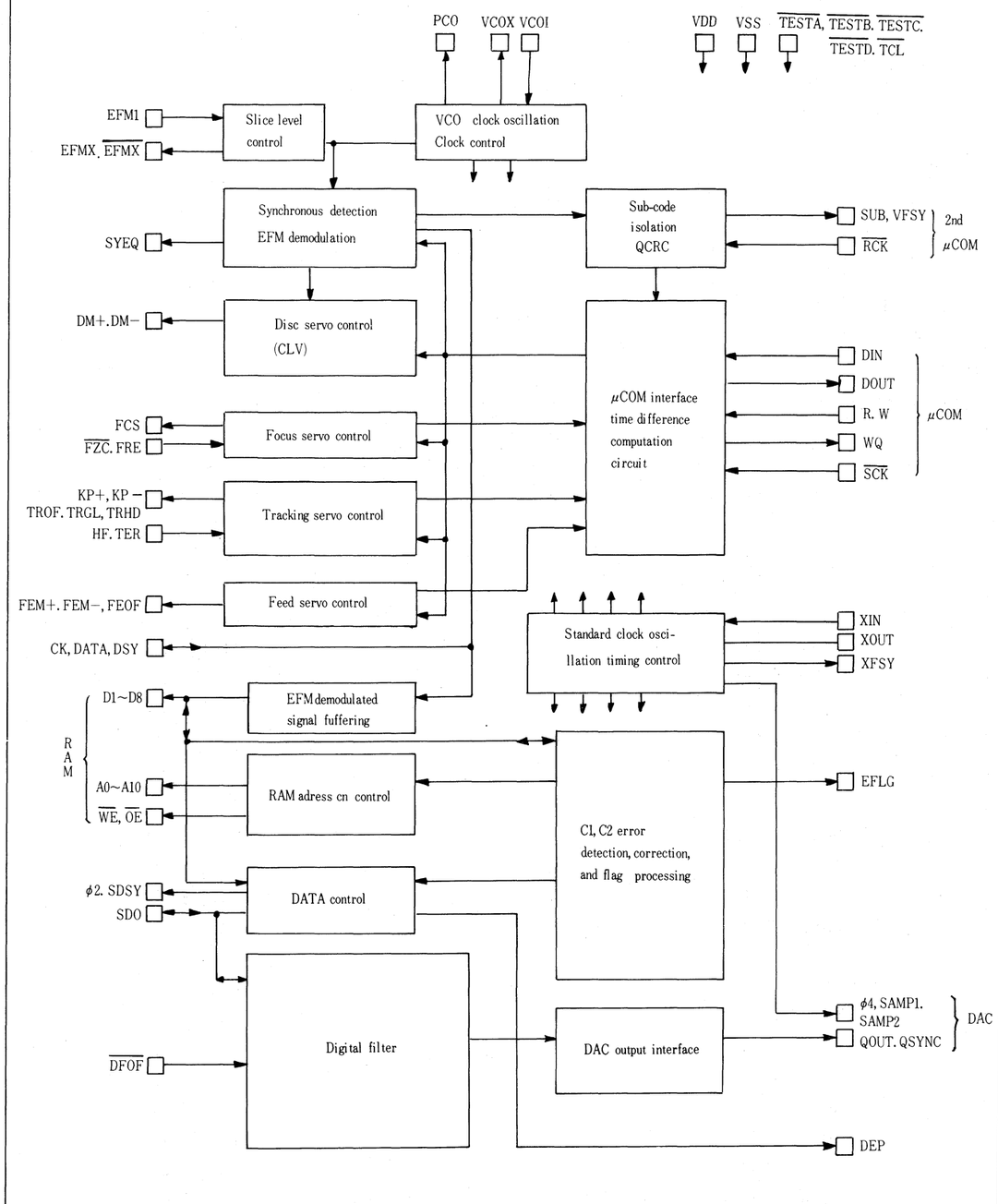




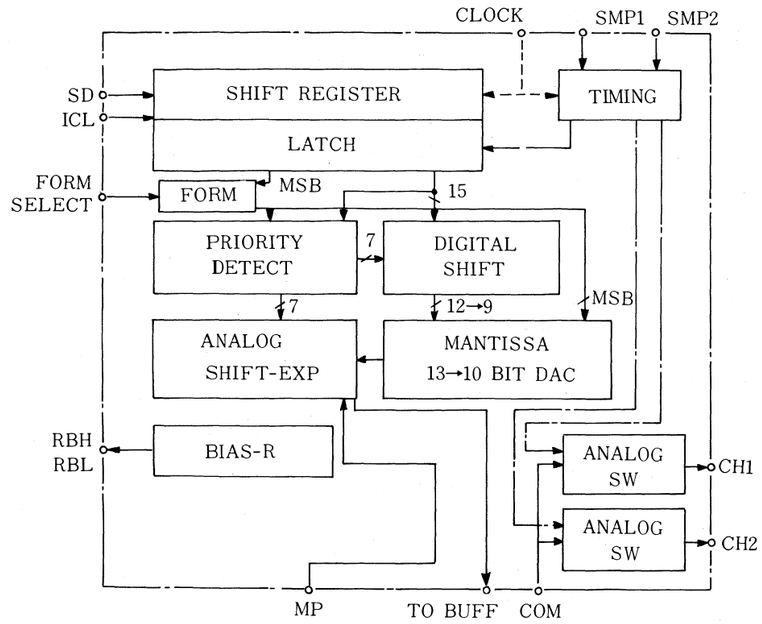
IC203 YM3805

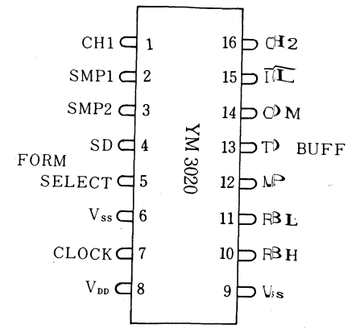


IC203 YM3805

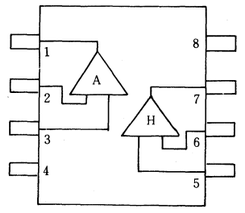


IC301 YM3020



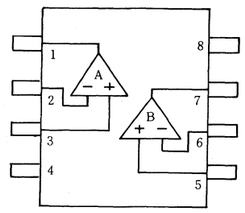


IC302. 303 NJM4560D



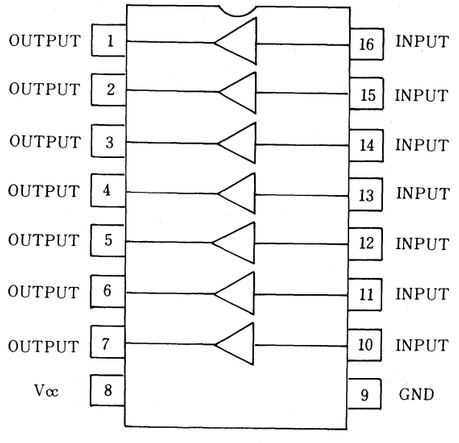
1. A OUTPUT
2. A-INPUT
3. A+INPUT
4. V⁻
5. B+INPUT
6. B−INPUT
7. B OUTPUT
8. V⁺

IC304 KA4558

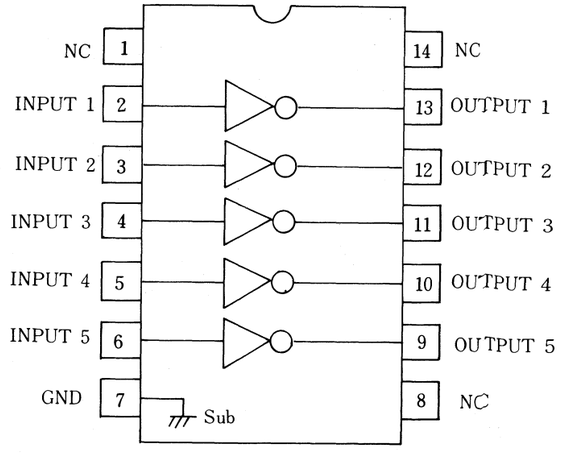


1. A OUTPUT
2. A-INPUT
3. A+INPUT
4. V⁻
5. B+INPUT
6. B−INPUT
7. B OUTPUT
8. V⁺

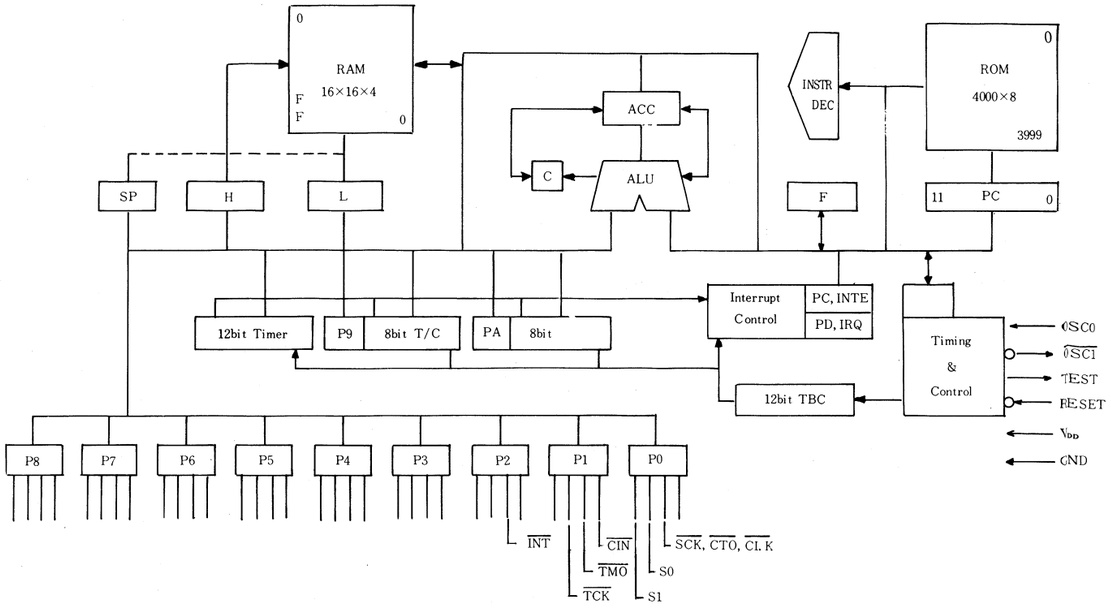
IC501 BA618

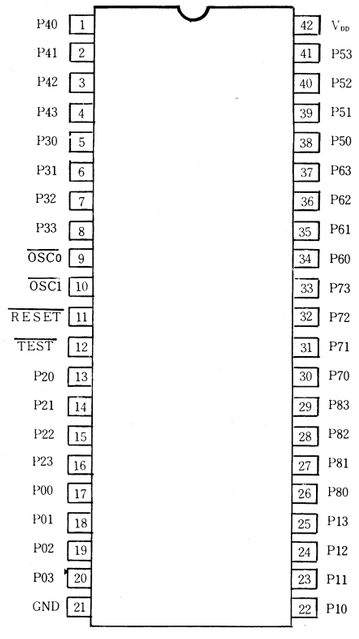


IC502 BA612



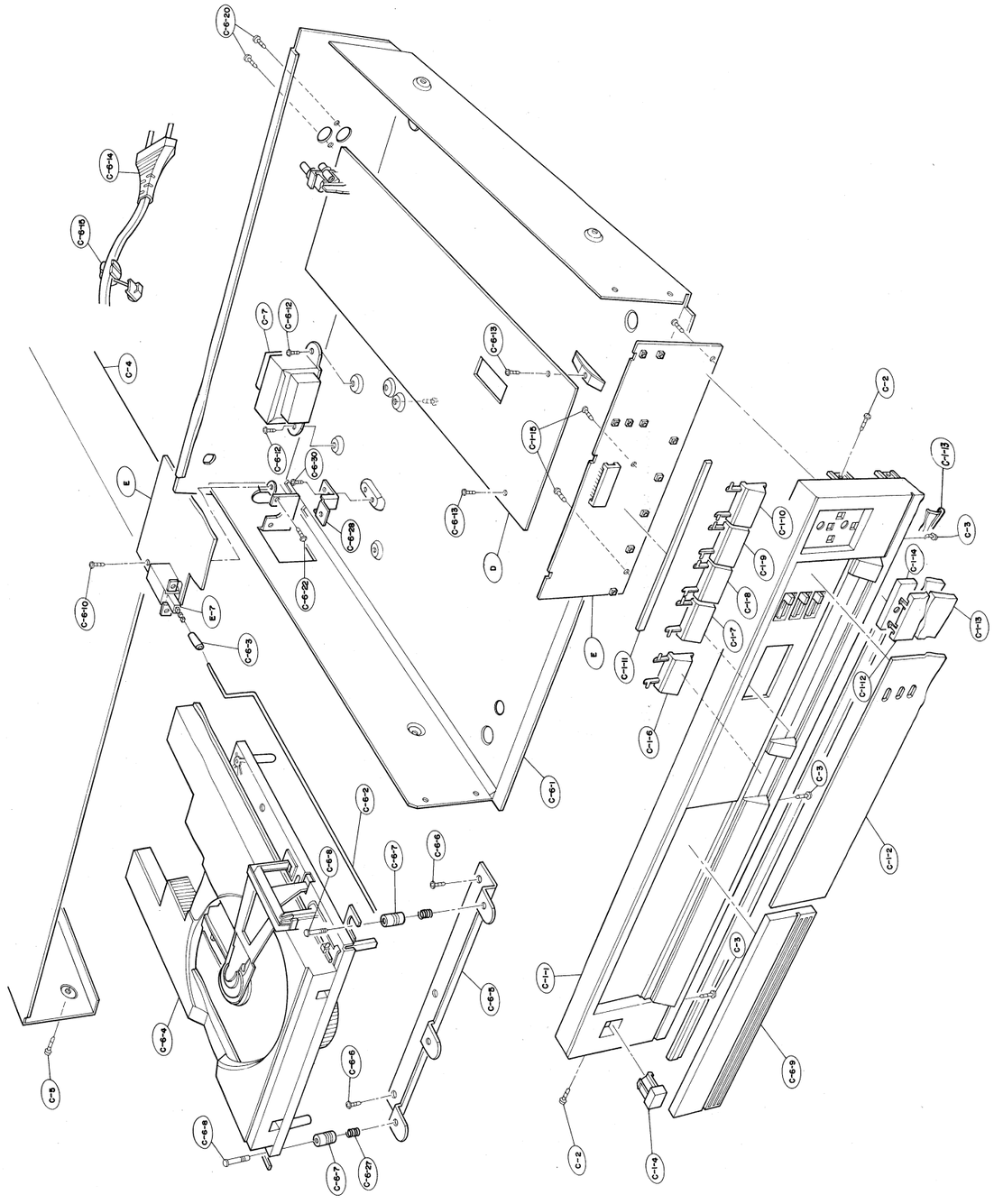
IC401-MSM6404A-74



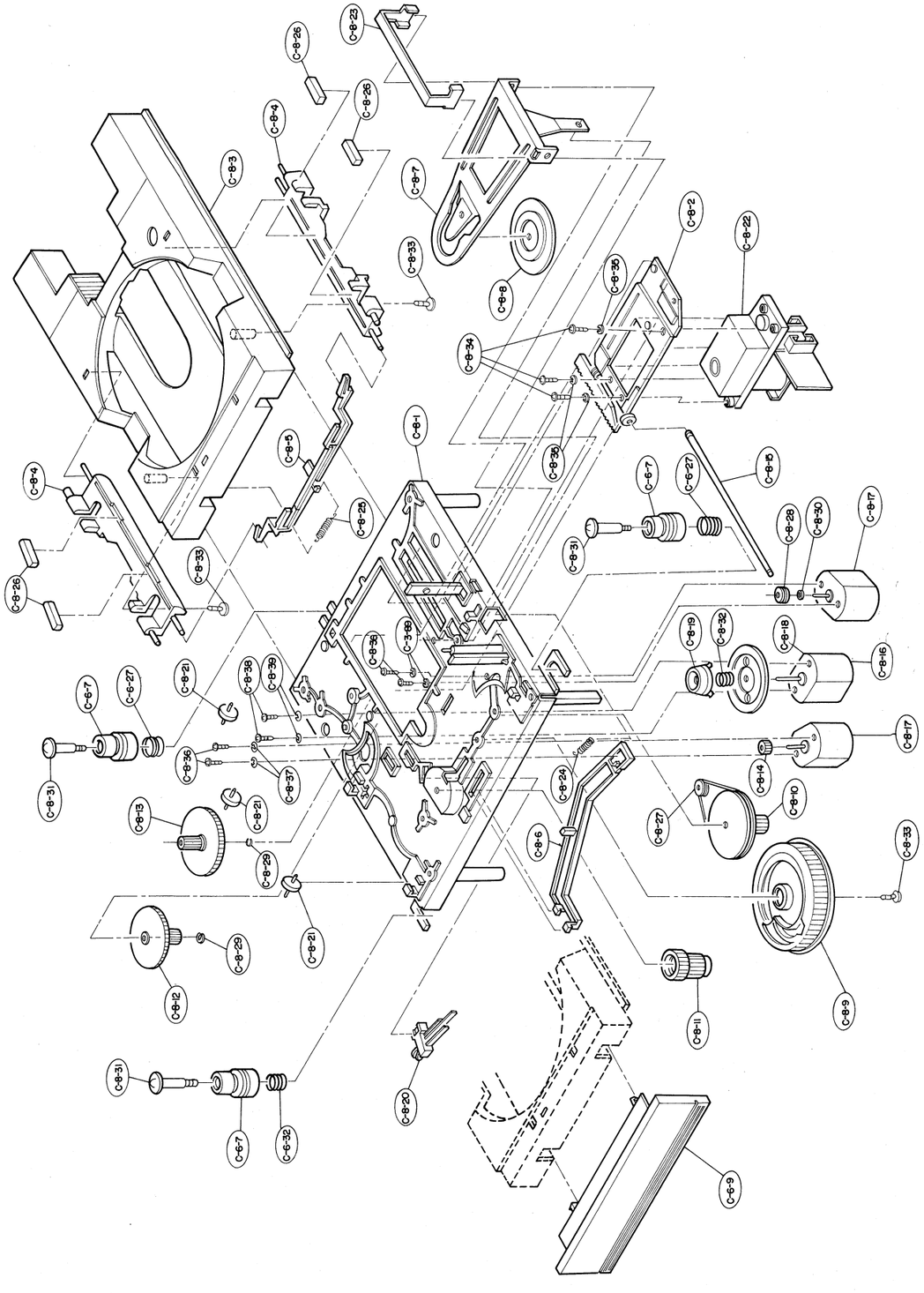


EXPLODED VIEW

Cabinet



Mechanism


C-8-23
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C-8-21
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C-8-31
C-8-20
C-6-7
C-6-32
C-8-9

REPLACEMENT PARTS LIST

Electrical Parts List

PRODUCT SAFETY NOTE: Products marked with a ⚠ have special characteristics important to safety. Before replacing any of these components, read carefully the safety precaution of this service manual, don't degrade the safety of the receiver through improper servicing.

ABBREVIATIONS: Capacitors ..... CC: Ceramic T.C. Type
CE: Electrolytic
CK: Ceramic Hi-K Type
CQ: Polyester

Resistors ..... RD: Carbon Film
RN: Metal Film

Tolerance (Not for CE) ..... D: ±0.5% J: ±5% K: ±10%
M: ±20% Z: +80%, −20%

(All resistors are 1/6W unless otherwise noted)

Ref. No.	Mfr's Part No.	Description
CAPACITORS		
C001	CK103Z52	CK, 0.01μF-Z 50V
C002	CK103Z52	CK, 0.01μF-Z 50V
C003	CK103Z52	CK, 0.01μF-Z 50V
C004	CK103Z52	CK, 0.01μF-Z 50V
C005	CE108C01	CE, 1000μF 16V (GSDG)
	CE228C01	CE, 2200μF 16V (GSEI)
C006	CE108C01	CE, 1000μF 16V (GSDG)
	CE228C01	CE, 2200μF 16V (GSEI)
C007	CE108D01	CE, 1000μF 25V
C008	CE108D01	CE, 1000μF 25V
C009	CE107B51	CE, 100μF 10V
C010	CE107B51	CE, 100μF 10V
C011	CE227C51	CE, 220μF 16V
C012	CE336C51	CE, 33μF 16V
C013	CE107B51	CE, 100μF 10V
C014	CE336C51	CE, 33μF 16V
C015	CE107B51	CE, 100μF 10V
C016	CE227C51	CE, 220μF 16V
C017	CE106C01	CE, 10μF 16V
C018	CK103Z52	CK, 0.01μF-Z 50V
C020	CE106C51	CE, 10μF 16V
C021	CK103Z52	CK, 0.01μF-Z 50V
C101	CE107B51	CE, 100μF 10V
C102	CE107B51	CE, 100μF 10V
C103	CQ152J53	CQ, 0.0015μF 100V
C104	CE336C51	CE, 33μF 16V
C105	CE107B51	CE, 100μF 10V
C106	CQ182J53	CQ, 0.0018μF-J 100V
C107	CQ182J53	CQ, 0.0018μF-J 100V
C108	CQ682J53	CQ, 0.0068μF-J 100V
C109	CQ393J53	CQ, 0.039μF-J 100V
C110	CQ473J53	CQ, 0.047μF-J 100V
C111	CQ184J33	CQ, 0.18μF-J 100V
C112	CC101J51	CC, 100pF-J 50V
C113	CE107B51	CE, 100μF 10V
C114	CE106C51	CE, 10μF 16V
C116	CQ124K03	CQ, 0.12μF-K 100V
C117	CC101J51	CC, 100pF-J 50V
C118	CQ474J33	CQ, 0.47μF-J 100V
C119	CQ184J33	CQ, 0.18μF-J 100V
C120	CQ104J53	CQ, 0.1μF-J 100V
C121	CC331K51	CC, 330pF-K 50V
C122	CQ103J53	CQ, 0.01μF-J 100V
C123	CQ103J53	CQ, 0.01μF-J 100V
C124	CK221K51	CC, 220pF-K 50V
C125	CE107B51	CE, 100μF 10V
C126	CE225F51	CE, 2.2μF 50V
C127	CQ152J53	CQ, 0.0015μF 100V
C128	624-026B	CE, 1μF 50V
C129	CK102K52	CK, 0.01μF-K 50V
C130	CC270J51	CC, 27pF-J 50V
C131	CQ123J53	CQ, 0.012μF-J 100V
C201	CE336B51	CE, 33μF 16V
C202	CE336B51	CE, 33μF 16V
C203	CC471K51	CC, 470pF-K 50V
C204	CK221K51	CC, 220pF-K 50V
C205	CQ332J53	CQ, 0.0033μF-J 100V
C206	CK473Z52	CK, 0.047μF-Z 50V
C207	CQ103J53	CQ, 0.01μF-J 100V
C208	CQ102J53	CQ, 0.001μF-J 100V
C211	CQ332J53	CQ, 0.0033μF-J 100V
C212	CC220J51	CC, 22pF-J 50V
C213	CQ104J53	CQ, 0.1μF-J 100V
C214	CC470J56	CC, 47pF-J 50V
C215	CC470J56	CC, 47pF-J 50V
C302	CE336C51	CE, 33μF 16V
C303	CQ222J53	CQ, 0.0022μF-J 100V
C304	CQ222J53	CQ, 0.0022μF-J 100V
C306	CC680J01	CC, 68pF-J 50V

Ref. No.	Mfr's Part No.	Description
C307	CE106C51	CE, 10μF 16V
C308	CQ683J53	CQ, 0.068μF-J 100V
C309	CQ683J53	CQ, 0.068μF-J 100V
C310	CQ153J53	CQ, 0.015μF-J 100V
C311	CQ153J53	CQ, 0.015μF-J 100V
C312	CQ122J53	CQ, 0.0012μF 100V
C313	CQ122J53	CQ, 0.0012μF 100V
C314	CQ122J53	CQ, 0.0012μF 100V
C315	CQ122J53	CQ, 0.0012μF 100V
C316	CE475F51	CE, 4.7μF 50V
C317	CE475F51	CE, 4.7μF 50V
C318	CQ332J53	CQ, 0.0033μF-J 50V
C319	CQ332J53	CQ, 0.0033μF-J 50V
C320	CE336C51	CE, 33μF 16V
C321	CE336C51	CE, 33μF 16V
C322	CE336C51	CE, 33μF 16V
C333	CE336C51	CE, 33μF 16V
C324	CQ102J53	CQ, 0.001μF-J 100V
C325	CQ102J53	CQ, 0.001μF-J 100V
C401	CE105F51	CE, 1μF 50V
C402	CE226B51	CE, 22μF 10V
C404	CE336B51	CE, 33μF 16V
⚠ C701	624-005B	C103P 400V (GSDG)
	624-005A	C103P 125V (GSEI)

RESISTORS

R004	RD471J26	RD, 470 ohm
R005	RD102J26	RD, 1K ohm
R006	RD471J26	RD, 470 ohm
R007	RD471J26	RD, 470 ohm
R008	RD333J26	RD, 33K ohm
R009	RD203J26	RD, 20K ohm
R010	RD103J26	RD, 10K ohm
R011	RD222J26	RD, 2.2K ohm
R012	RD822J26	RD, 8.2K ohm
R013	RD222J26	RD, 2.2K ohm
R014	RD822J26	RD, 8.2K ohm
R016	RD104J26	RD, 100K ohm
R017	RD223J26	RD, 22K ohm
R018	RD102J26	RD, 1K ohm
R101	RD101J26	RD, 100 ohm
R102	RD333J26	RD, 33K ohm
R103	RD103J26	RD, 100K ohm
R104	RD224J26	RD, 220K ohm
R105	RD223J26	RD, 22K ohm
R106	RD223J26	RD, 22K ohm
R107	RD204J26	RD, 200K ohm
R108	RD222J26	RD, 2.2K ohm
R109	RD223J26	RD, 22K ohm
R110	RD221J26	RD, 220 ohm
R111	RD181J26	RD, 180 ohm
R112	RD822J26	RD, 8.2K ohm
R113	RD223J26	RD, 2.2K ohm
R114	RD224J26	RD, 220K ohm
R115	RD681J26	RD, 680 ohm
R116	RD184J26	RD, 180K ohm
R117	RD823J26	RD, 82K ohm
R118	RD274J26	RD, 270K ohm
R119	RD101J26	RD, 100 ohm
R120	RD102J26	RD, 1K ohm
R121	RD222J26	RD, 2.2K ohm
R122	RD222J26	RD, 2.2K ohm
R123	RD102J26	RD, 1K ohm
R124	RD153J26	RD, 15K ohm
R125	RD104J26	RD, 100K ohm
R126	RD104J26	RD, 100K ohm
R127	RD104J26	RD, 100K ohm
R128	RD103J26	RD, 10K ohm
R129	RD103J26	RD, 10K ohm
R130	RD680J26	RD, 68 ohm
R131	RD682J26	RD, 6.8K ohm
R132	RD103J26	RD, 10K ohm
R133	RD103J26	RD, 10K ohm
R134	RD393J26	RD, 39K ohm
R135	RD393J26	RD, 39K ohm
R136	RD393J26	RD, 39K ohm 1/4W
R137	RD563J26	RD, 56K ohm
R139	RD104J26	RD, 100K ohm
R140	RD564J26	RD, 560K ohm
R141	RD683J26	RD, 68K ohm
R142	RD104J26	RD, 100K ohm
R143	RD564J26	RD, 560K ohm
R144	RD394J26	RD, 390K ohm
R145	RD393J22	RD, 39K ohm 1/4W
R146	RD294J26	RD, 390K ohm
R147	RD474J26	RD, 470K ohm
R148	RD183J26	RD, 18K ohm
R149	RD103J26	RD, 10K ohm
R150	RD153J26	RD, 10K ohm
R151	RD222J26	RD, 2.2K ohm
R152	RD682J26	RD, 6.8K ohm
R153	RD103J26	RD, 10K ohm
R154	RD563J26	RD, 56K ohm
R155	RD222J26	RD, 2.2K ohm
R156	RD123J26	RD, 12K ohm
R157	RD2R2J26	RD, 2.2 ohm
R158	RD155J26	RD, 1.5M ohm
R159	RD155J26	RD, 1.5M ohm
R201	RN223J03	RN, 22K ohm 1/4W
R202	RN223J03	RN, 22K ohm 1/4W
R203	RN223J03	RN, 22K ohm 1/4W
R204	RD222J26	RD, 2.2K ohm
R205	RD332J26	RD, 3.3K ohm
R206	RN223J03	RN, 22K ohm 1/4W
R207	RD472J26	RD, 4.7K ohm
R208	RD104J26	RD, 100K ohm
R209	RD152J26	RD, 1.5K ohm
R210	RD223J26	RD, 2.2K ohm
R211	RD221J26	RD, 220 ohm
R214	RD183J26	RD, 18K ohm
R215	RD682J26	RD, 6.8K ohm
R216	RD682J26	RD, 6.8K ohm

Ref. No.	Mfr's Part No.	Description
R217	RD103J26	RD, 10K ohm
R219	RD105J26	RD, 1M ohm
R301	RD473J26	RD, 47K ohm
R302	RD223J26	RD, 22K ohm
R303	RD104J26	RD, 100K ohm
R304	RD104J26	RD, 100K ohm
R305	RD101J26	RD, 100 ohm
R306	RD220J26	RD, 22 ohm
R307	RD471J26	RD, 470 ohm
R308	RD471J26	RD, 470 ohm
R309	RD682J26	RD, 6.8K ohm
R310	RD682J26	RD, 6.8K ohm
R311	RD102J26	RD, 1K ohm
R312	RD181J26	RD, 180 ohm
R313	RD474J26	RD, 470K ohm
R314	RD102J26	RD, 1K ohm
R315	RD181J26	RD, 180 ohm
R316	RD474J26	RD, 470K ohm
R317	RD102J26	RD, 1K ohm
R318	RD102J26	RD, 1K ohm
R319	RD223J26	RD, 22K ohm
R320	RD223J26	RD, 22K ohm
R321	RD102J26	RD, 1K ohm
R322	RD102J26	RD, 1K ohm
R323	RD682J26	RD, 6.8K ohm
R324	RD682J26	RD, 6.8K ohm
R401	RD103J26	RD, 10K ohm
R501	RD181J22	RD, 180 ohm 1/4W
R502	RD181J22	RD, 180 ohm 1/4W
R503	RD181J22	RD, 180 ohm 1/4W
R504	RD181J22	RD, 180 ohm 1/4W
R505	RD181J22	RD, 180 ohm 1/4W
R506	RD181J22	RD, 180 ohm 1/4W
R507	RD181J22	RD, 180 ohm 1/4W
R508	RD104J22	RD, 100K ohm 1/4W
R509	RD104J22	RD, 100K ohm 1/4W
R510	RD104J22	RD, 100K ohm 1/4W

DIODES

D001	652-005D	Diode, Rect DS4002
D002	652-005D	Diode, Rect DS4002
D003	652-005D	Diode, Rect DS4002
D004	652-005D	Diode, Rect DS4002
D005	652-005D	Diode, Rect DS4002
D006	652-005D	Diode, Rect DS4002
D008	654-723D	Diode, Zener DZ7.5B
D009	654-723A	Diode, Zener DZ5.6B
D010	654-724B	Diode, Zener DZ12B
D011	654-723E	Diode, Zener DZ8.2B
D012	654-724B	Diode, Zener DZ12B
D013	654-723E	Diode, Zener DZ8.2B
D014	651-003A	Diode, SW DS4148
D015	651-003A	Diode, SW DS4148
D016	654-724C	Diode, Zener DZ13B
D201	654-419A	Diode, Varactor ISV55
D501	651-003A	Diode, SW DS4148

Ref. No.	Mfr's Part No.	Description
D502	651-003A	Diode, SW DS4148
D503	651-003A	Diode, SW DS4148
D504	651-003A	Diode, SW DS4148
D505	659-022A	LED, Sisplay LC-204 MLE GN

TRANSISTORS

⚠ Q003	665-881C	TR, KTC2236AY
⚠ Q004	664-601B	TR, KTD 880-Y
Q005	665-712A	TR, KTA966A-Y
Q006	665-813C	TR, KTA1015-GR
⚠ Q007	665-832B	TR, KTC162A-Y (GSDG)
	665-881C	TR, KTC2236A-Y (GSEI)
⚠ Q008	665-832B	TR, KTC1627A-Y (GSDG)
	665-881C	TR, KTC2236A-Y (GSEI)
⚠ Q009	665-833B	TR, KTA817A-Y (GSDG)
	665-712A	TR, KTA966A-Y (GSEI)
⚠ Q010	665-833B	TR, KTA817A-Y (GSDG)
	665-712A	TR, KTA966A-Y (GSEI)
Q101	665-812C	TR, KTC1815-GR
Q103	665-712A	TR, KTA966A-Y
Q104	665-881C	TR, KTC2236AY
Q105	665-712A	TR, KTA966A-Y
Q106	665-881C	TR, KTC2236A-Y
Q301	665-813C	TR, KTA1015-GR
Q302	665-812C	TR, KTC1815-GR
Q303	665-812C	TR, KTC1815-GR
Q304	665-812C	TR, KTC1815-GR
Q305	665-812C	TR, KTC1815-GR
Q306	665-813C	TR, KTA1015-GR
Q401	665-813C	TR, KTA1015-GR
Q402	665-813C	TR, KTA1015-GR
Q403	665-813C	TR, KTA1015-GR
Q404	665-812C	TR, KTC1815-GR

INTEGRATED CIRCUITS

IC101	668-671A	IC, IG-15630
IC102	668-678A	IC, STA451C
IC104	668-680A	IC, BA6218
IC201	668-051C	IC, NJM2043D
IC202	668-508C	IC, HY6116-15
IC203	668-675A	IC, YM3805
IC301	668-676A	IC, YM3020
IC302	668-536A	IC, NJM4560D
IC303	668-536A	IC, NJM4560D
IC304	668-015D	IC, KA4558
IC401	668-677A	IC, MSM6404A-74
IC501	668-666C	IC, BA618
IC502	668-666B	IC, BA612

MISCELLANEOUS

L201	638-603B	Coil, 8.6436MHz
VR101	613-022C	VR, Semi-Fixed 47KB
VR102	613-022A	VR, Semi-Fixed 10KB
VR103	613-022D	VR, Semi-Fixed 100KB
VR104	613-022A	VR, Semi-Fixed 10KB

Ref. No.	Mfr's Part No.	Description
VR105	613-022D	VR, Semi-Fixed 100KB
S501-510	558-908A	SW, Tact, KH10902 DAD
⚠ S701	554-612B	SW, Power
X201	617-602C	Cristal 8.6436MHz

Ref. No.	Mfr's Part No.	Description
J601	576-002B	Jack Block S-436P
⚠ F001	585-202C	Fuse, 250V 0.2A (GSDG)
	585-328B	Fuse, 250V 0.3A (GSEI)
	586-001C	Fuse Clip 5×20 Pin Type

Cabinet Parts List

Ref. No.	Mfr's Part No.	Description
A-9	564-017E	Cord Phono 700m/m (GSDG)
	564-017A	Cord Phono 700m/m (GSEI)
C-1	258-968B	Front Panel Ass'y
C-1-1	258-967B	Front Panel
C-1-2	236-258A	Window LED
C-1-4	273-716C	Knob, Power
C-1-6	273-078A	Knob, Operation-Open/Close
C-1-7	273-078B	Knob, Operation-BWD
C-1-8	273-078C	Knob, Operation-FWD
C-1-9	273-078D	Knob, Operation-REV
C-1-10	273-078E	Knob, Operation-F.F.
C-1-11	447-004A	Cushion, Knob (B)
C-1-12	273-077A	Knob, Play/(Stop, pause)
C-1-13	273-077B	Knob, (Play)/Stop, Pause
C-1-14	447-003A	Cushion, Knob (A)
C-1-15	353-025E	Screw, Special
C-1-16	447-004B	Cushion, Knob Open Close
C-2	TRQ1830J	Screw, TRQ2+3×6A
C-3	TCQ1830J	Screw, Tapping TC3+3×6
C-4	213-001A	Cabinet
C-5	353-072D	Screw, Special
C-6-1	313-305C	Chassis Main (GSDG)
	313-305B	Chassis Main (GSEI)
C-6-2	333-171A	Lever P/Switch
C-6-3	477-002A	Rubber, Connecting
C-6-5	321-604A	Bracket, M/D
C-6-6	TRQ2230J	Screw, TRQ2+4×6A
C-6-7	447-005A	Rubber, VIB Proof
C-6-9	246-003A	Decoration, M/D
C-6-10	TRQ1830J	Screw, TRQ2+3×6A
C-6-11	353-052C	Screw, Special
C-6-12	TRQ2230J	Screw, TRQ2+4×6A
C-6-13	TRQ1830J	Screw, TRQ2+3×6A
⚠ C-6-14	681-039F	Power Cord (GSDG)
	681-039D	Power Cord (GSEI)
C-6-15	324-348A	Holder, Cord
C-6-20	353-025C	Screw, Special
C-6-21	472-610B	Felt
C-6-22	MRC1830J	Screw
C-6-24	324-022A	Holder, Transfer
C-6-25	352-027H	Nut
C-6-26	353-025R	Screw, Special Tapping 2×6
C-6-27	442-634Z	Spring, VIB
C-6-28	321-605A	Bracket, M/D
C-6-29	447-907H	Cushion
C-6-30	TPQ1830J	Screw, TPQ2+3×6A
C-6-32	442-664D	Spring VIB
⚠ C-7	641-722C	Trans, Power 220V (GSDG)
	641-722B	Trans, Power 120V (GSEI)
C-8	411-103A	Mechanism Ass'y
D	511-091A	PCB Ass'y, Main
E	511-092C	PCB Ass'y, Switch (GSDG)
	511-092A	PCB Ass'y, Switch (GSEI)

NOTE : Front Panel Ass'y (C–1) will be supplied Front Panel (C–1–1) and window LED (C–1–2).

Mechanism Parts List

Ref. No.	Mfr's Part No.	Description	Ref. No.	Mfr's Part No.	Description
C-8	411-103A	Mechanism Ass'y	C-8-21	384-004A	Guide Roller
C-8-1	313-052A	Chassis Ass'y	C-8-22	411-101A	Optical Pick up
C-8-2	225-002A	Pu Base Gas	C-8-23	322-002A	Supporter
C-8-3	228-001A	Box	C-8-24	442-050A	Spring, Compression
C-8-4	256-025A	Table Plate	C-8-25	442-051A	Spring
C-8-5	385-010A	Slide	C-8-26	477-007A	Rubber, Disc Guide
C-8-6	333-009A	Lock Lever	C-8-27	451-002A	Loading Belt
C-8-7	386-101A	Chuck Arm	C-8-28	432-049A	Pulley, Motor
C-8-8	327-002A	Disc Clamp	C-8-29	354-006A	Washer
C-8-9	374-001A	Loading Cam	C-8-30	354-007A	Washer
C-8-10	435-015A	Loading Gear-A	C-8-31	353-007A	Screw, Special
C-8-11	435-016A	Loading Gear-B	C-8-32	442-021A	Spring Slide Ring
C-8-12	435-017A	Pu Gear-A	C-8-33	353-0520	Screw, Special
C-8-13	435-018A	Pu Gear-B	C-8-34	MPC1526J	Screw
C-8-14	435-019A	Motor Gear	C-8-35	WSB15000	Waher, Spring
C-8-15	423-005A	Pu Base Shaft	C-8-36	MPC0922J	Screw
C-8-16	414-001A	Spindle Motor	C-8-37	WSB0900O	Washer, Sping
C-8-17	414-002A	Loading Motor	C-8-38	MPC0930J	Screw
C-8-18	424-001A	Spindle Table	C-8-39	WSB0900O	Washer Spring
C-8-19	385-011A	Slide Ring	C-8-40	353-025G	Screw, Special
C-8-20	558-030A	Leaf SW			

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SV2-650B
AUGUST, 1986 Printed in Korea